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# Institutionalisation of forest data:

## Establishing legal frameworks for sustainable forest monitoring in REDD+ countries

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# Institutionalisation of forest data:

## Establishing legal frameworks for sustainable forest monitoring in REDD+ countries

Food and Agriculture Organization of the United Nations
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# Abbreviations and acronyms

| | |
|---|---|
| AFOLU | Agriculture, Forestry and Other Land Use |
| ANLA | National Authority on Environmental Licenses (Colombia) |
| BUR | Biennial Update Report |
| CCD | Climate Change Department (Uganda) |
| CENIGA | Director of the National Geo-environmental Information Center (Costa Rica) |
| COP | Conference of the Parties |
| DDD | Direction of Sustainable Development (Democratic Republic of the Congo) |
| DFS | District Forest Services (Uganda) |
| DIAF | Direction of Forest Management and Inventories (Democratic Republic of the Congo) |
| DGIOFFS | General Direction of Information, Forests and Wildlife Management (Peru) |
| FAO | Food and Agriculture Organization of the United Nations |
| F&CMS | Forest and Carbon Monitoring System (Colombia) |
| FSSD | Forestry Sector Support Department |
| GHG | greenhouse gas |
| GHG-I | Greenhouse Gas Inventory |
| ICF | Wildlife, Protected Areas, Forest Development and Conservation Institute (Honduras) |
| IDEAM | Hydrology, Meteorology and Environmental Study Institute (Colombia) |
| INFONA | National Forest Institute (Paraguay) |
| INGEI | National Inventory on Greenhouse Gases |
| LULUCF | Land Use, Land-Use Change and Forestry |
| MADES | Ministry of Environment and Sustainable Development (Paraguay) |
| MADS | Ministry of Environment and Sustainable Development (Colombia) |
| MAG | Ministry of Agriculture (Costa Rica) |
| MEDD | Ministry of Environment and Sustainable Development (Democratic Republic of the Congo) |
| MINAE | Ministry of Environment (Costa Rica) |
| MRV | measuring, reporting and verification |
| MWE | Ministry of Water and Environment (Uganda) |

| | |
|---|---|
| NAMA | Nationally Appropriate Mitigation Action |
| NDC | National Determined Contribution in the context of the Paris Agreement |
| NFA | National Forest Authority (Uganda) |
| NFI | National Forest Inventory |
| NFM | national forest monitoring |
| NFMS | National Forest Monitoring System |
| NGO | non-governmental organization |
| PMSB | National Programme on Monitoring of Forest and Forest Ecosystems (Colombia) |
| RBP | results-based payment |
| REDD+ | Reducing Emissions from Deforestation and Forest Degradation and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks |
| SDG | Sustainable Development Goal |
| SERFOR | National Forest and Wildlife Service (Peru) |
| SFM | sustainable forest management |
| SIGMOF | Forest Monitoring and Management Information System (Honduras) |
| SIMOCUTE | National System for Monitoring Land Cover, Land Use, and Ecosystems (Costa Rica) |
| SINIA | National Environmental Information System (Colombia – Costa Rica) |
| SIS | Safeguards Information System |
| SMBYC | Forest and Carbon Monitoring System (Colombia) |
| SNIF | National Forest Information System (Colombia) |
| SNIFFS | National Forest and Wildlife Information System (Peru) |
| SNIT | National Territorial Information System (Costa Rica) |
| SSMT | Terrestrial Monitoring Satellite System (Honduras) |
| SSTS | Land Monitoring Satellite System (Democratic Republic of the Congo) |
| UNFCCC | United Nations Framework Convention on Climate Change |
| UN-REDD | United Nations Collaborative Programme on Reducing Emissions from Deforestation and Forest Degradation in developing countries |
| VGNFM | Voluntary Guidelines on National Forest Monitoring |

# Executive summary


Over the past ten years, REDD+ countries have made substantial advances in developing and operationalizing their National Forest Monitoring Systems (NFMS), to comply with measuring, reporting and verification (MRV) commitments for REDD+ under the United Nations Framework Convention on Climate Change (UNFCCC), as well as to provide better forest data to effectively support decision-making and domestic policies (Neef *et al.*, 2020). Countries' commitments to reduce carbon emissions from the forest sector, as reflected in their National Determined Contributions under the Paris Climate Agreement, imply more than ever multipurpose, accessible and transparent NFMS to adequately manage forest data.

Overall, national forest monitoring (NFM) can be defined as a comprehensive process that includes the systematic collection, analysis and dissemination of forest-related data, and the derivation of information and knowledge at regular intervals to allow the monitoring of changes over time (FAO, 2017). Guided by the UNFCCC decisions, the establishment of an NFMS for REDD+ has been advanced through capacity development for national agencies and stakeholders, and through South-South cooperation.

Efforts have also been made to institutionalize NFMS, in order to enhance country ownership of the entire REDD+ architecture, which is key to its sustainability, and to paving the way for more streamlined use of forest data, data-sharing and transparency.

The Voluntary Guidelines on National Forest Monitoring (FAO, 2017) define 'institutionalizing' an NFMS as formally, firmly and permanently embedding it within a country's forest administration. To achieve that, legal provisions are required to clarify how the NFMS operates, while reducing dependency on international cooperation.

To sustainably manage forests, long-term processes are required together with sound structures able to enforce legal measures beyond the duration of a single political cycle. In this regard, forest-related institutions with clear mandates can facilitate the task of ensuring the sustainability of an NFMS, accessing and properly using REDD+ results-based payments (RBP), and adequately informing decision-making processes to reduce deforestation.

In contrast, concerns about distortion or misuse of data and information, together with lack of trust, cost-related issues, ambiguous institutional mandates and unclear legal frameworks are often at the root of data-accessibility challenges. While informal solutions sometimes produce results, these are generally unreliable and unsustainable, as they often depend on personal networks and may require some return of favor.

A robustly institutionalized NFMS can then help to ensure that:

I. national monitoring of forests is considered a fundamental government responsibility, and there is ownership;

II. data and information are consistently collected, managed, made permanently available and analyzed over time;

III. national expertise is retained, which is a precondition for further development and improvement of the system;

IV. the government has a clear contact point when analysis and specific forest-related information are needed;

V. the expertise and experience developed are stored to create the necessary 'institutional memory'; and

VI. a clear governance structure is adopted, defining the roles of the different entities involved in the NFMS and related information systems.

In order to support developing countries in moving towards a more solid institutional setting, this paper provides a basis for understanding the importance of institutionalizing an NFMS within each country, particularly from a legal, financial and capacity-building perspective.

In particular, it describes the stepwise approach adopted by the Food and Agriculture Organization of the United Nations (FAO) to guide development and adoption of a legal instrument aimed at institutionalizing an NFMS. The approach is based on (i) systematic gap analysis of the legal framework; (ii) development of detailed recommendations for the government, highlighting weaknesses and constraints; and (iii) a contribution to the drafting of new laws and regulations.

FAO has also developed a checklist tool to assist countries in identifying relevant features that should be included in an NFMS legal instrument. This checklist may facilitate the assessment of their inclusion in the legal text during the drafting process, and help to clarify if further consultations are needed to that end.

Involving legal experts from the early phases of establishing an NFMS could help to address these issues and identify appropriate legal solutions that are tailored to the context of each individual country. Statutory instruments include, in order of their position in the hierarchy: the Constitution; international law; laws enacted by Parliament; decrees, whether issued by the President of the Republic, the Council of Ministers or Ministries; ministerial regulations/resolutions; and legal rules issued by lower-ranking authorities, such as regional decrees of the legislative bodies or municipal ordinances.

Some examples explaining the role of the law refer to legal instruments that clarify the roles and functions of forest governmental (and non-governmental) entities covering distinct NFMS responsibilities, while also establishing inter-institutional coordination mechanisms, integrating guiding principles and clear definitions, planning for financial commitments, enhancing transparency and data accessibility, and guaranteeing national ownership. Statutory instruments also play an important role in informing forest-related decision-making processes, since they provide certainty by codifying existing practices and uses.

Case studies are showcased presenting successful examples of countries adopting legal provisions to establish an NFMS in line with Governance Principles 2 and 4 of the Voluntary Guidelines on National Forest Monitoring.[1] In Latin America, five countries have recently adopted secondary instruments – such as decrees or ministerial agreements – contributing to the institutionalisation of NFMS. Relevant lessons learned from those country experiences are documented to benefit other REDD+ countries. First and foremost, it will be essential to have clarity on the way that a country's NFMS operates, and establish interoperability mechanisms to ensure data[2] accessibility among different institutions and coordination of consultative bodies. There needs to be a clearly defined system for the smooth flow of information from national to subnational level, and vice-versa. If the information system involves other sectors, such as land and agriculture, the different ministries and competent entities should be involved from the outset in the design of the monitoring system. Their corresponding roles and functions within the system should then be defined within the same legal text. Last but certainly not least, strong political will is a critical aspect to the success of any NFMS – to ensure that the instrument that has been drafted responds to government priorities.

Further achievements are expected in the near future from other REDD+ countries taking advantage from those examples, as they make efforts to strengthen human capacities and clarify responsibilities and arrangements related to their NFMS.

[1] Principle 2: Legal and policy basis and Principle 4: Institutionalisation of NFM of Governance Principles, Section 2.1 of the Voluntary Guidelines on National Forest Monitoring.

[2] E.g. that privacy rules are respected, and periodically collected data are coherently aggregated.

Chapter 1

# Introduction

## Why are legal and institutional arrangements needed to establish National Forest Monitoring Systems for REDD+?

The institutionalisation of an NFMS contributes to increased country ownership, which is key to sustainability, and to paving the way for more streamlined use of information generated in the forest sector.

Forestry implies long-term processes, which therefore require sound structures capable of guaranteeing implementation of the measures adopted over time and across political cycles. Forest-related institutions with clear mandates can facilitate the task of ensuring the sustainability of an NFMS, accessing and properly using REDD+ results-based payments (RBP), and adequately informing decision-making processes to reduce deforestation.

## National Forest Monitoring Systems in the context of the Warsaw Framework for REDD+ and the Katowice Transparency Framework under the Paris Agreement

National forest monitoring (NFM) can be defined as a comprehensive process that includes the systematic collection, analysis and dissemination of forest-related data, and the derivation of information and knowledge at regular intervals to allow the monitoring of changes over time (FAO, 2017). It focuses on acquiring national-level data and information on forests, their condition, values and uses. In certain countries, NFM systems extend to trees outside forests and contribute to land-use monitoring. Forest monitoring is critical to the provision of effective information to policy-makers, to facilitate sustainable forest management and assist countries in complying with their emissions reduction goals.

It enables countries to align their forest policies with updated, reliable, transparent and accessible information (FAO, 2017). The function of each country's NFMS will depend on national circumstances. In addition, monitoring functions can go beyond forest carbon assessment, to include other elements such as forest health, biodiversity, production, protection and socio-economic functions, as well as legal and political frameworks related to the forest sector.

A well-designed and embedded NFMS – especially through ground operations of the National Forest Inventory – can also provide relevant data to inform a National Safeguards Information System.

In general, robust and transparent National Forest Monitoring Systems are essential for countries to inform effective forest-related national decision-making processes, while complying with international commitments, such those under the UNFCCC.

Negotiations between UNFCCC signatory countries within the Conference of the Parties (COP) led to a series of decisions relating to REDD+ activities over time.

These take the form of a combination of principles, rules and modalities, including methodological guidance to develop a robust and transparent NFMS

(e.g. Decisions 1-2/ CP.13, 4/CP.15, 1/CP.16, 2-12/ CP17, 1/CP 18, 11-14/CP.19, 16-18/CP21).[1] The result of this process is a series of provisions, including recommendations and requirements that are both institutional and technical.

For developing countries participating in REDD+, and therefore seeking to reduce greenhouse gas (GHG) emissions from the forest sector, an NFMS represents one of the four pillars to be developed and strengthened in order to access results-based payments in line with Decision 1/CP.16[2] and the UNFCCC's Warsaw Framework for REDD+.[3] In particular, during Phase 3, which focuses on the implementation of REDD+ results-based actions and results-based payments, an NFMS should enable national-level measuring, reporting and verification, to demonstrate the effectiveness of policies and measures in the context of RBP. It is important that data obtained from the NFMS are used consistently in all UNFCCC reporting efforts. In Phase 3, REDD+ measuring, reporting and verification becomes operational, allowing countries to report the mitigation performance of REDD+ activities at national scale (in terms of verified emissions reduction of tonnes of carbon dioxide equivalent/year), using a combination of remote sensing and ground-based forest carbon inventories. This performance can be voluntarily reported to the UNFCCC Secretariat in the context of results-based payments, as an annex to the country's Biennial Update Report (BUR) (FAO, 2017).

In addition, an NFMS should play a crucial role in the provision of information and estimates under the Katowice Transparency Framework of the Paris Agreement (Art. 13), under which, beyond 2020, developing countries will have to submit the REDD+ Annex for technical assessment.

Other relevant international commitments include the Bonn Challenge, which aims to bring 150 million hectares (ha) of the world's deforested and degraded land under restoration by 2020, and 350 million ha by 2030. Underlying the Bonn Challenge is the Forest Landscape Restoration approach, which aims to restore ecological integrity while improving human well-being through multifunctional landscapes.

1 The integration of field and remote-sensing data is also promoted in the framework of the Conference of the Parties, with an emphasis on providing estimates that are transparent, consistent and accurate (as far as possible). Estimates should reduce uncertainties, taking into account national capabilities and capacities, with results that are available and suitable for review.

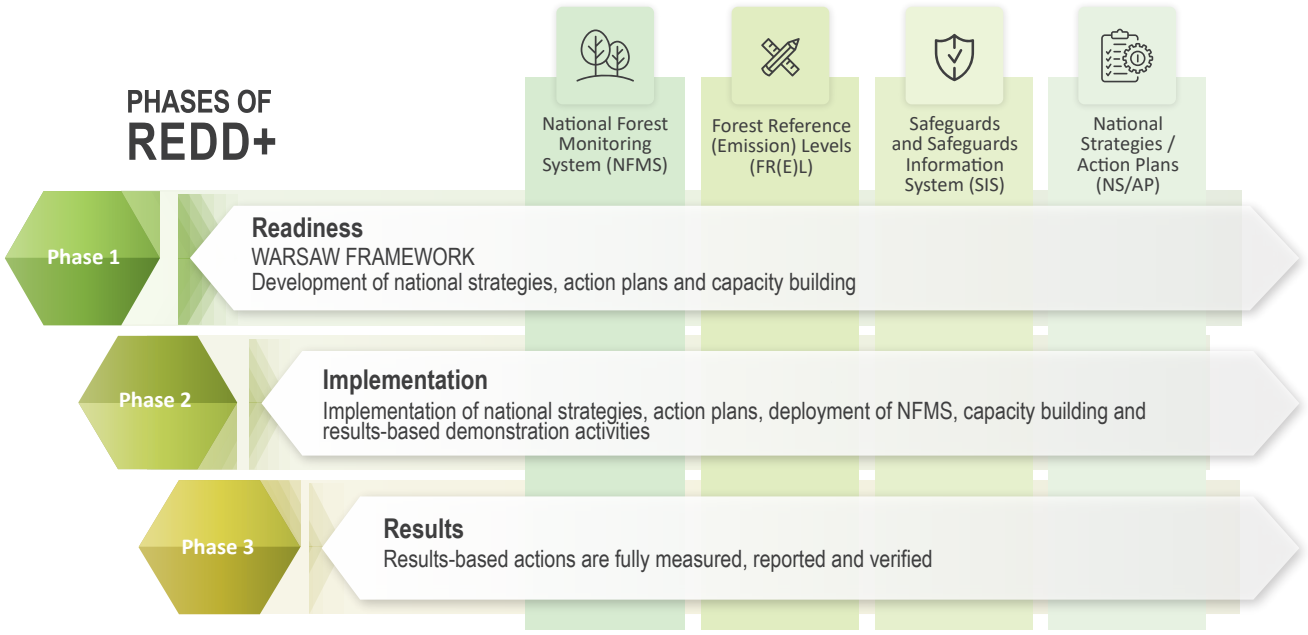
2 According to Decision 1/CP.16, countries should implement REDD+ activities in three phases. Only in the third phase, when the NFMS is operational, may a country receive positive incentives (results-based payments), in accordance with UNFCCC decisions and the Paris Agreement.

3 See Annex, Box A.

## BOX 1 The Katowice Transparency Framework under the Paris Agreement

Designed to promote transparency and mutual trust, the Katowice Transparency Framework is based on existing transparency arrangements set up under the United Nations Convention on Climate Change (UNFCCC), commonly known as the measurement, reporting and verification (MRV) framework. Transparency of action refers to the information that each country has to provide on a regular basis in order to track the progress of implementing National Determined Contributions (NDCs), national greenhouse gas inventory (NGG-I) reports, and information related to climate change impacts and adaptation. Transparency of support refers to clarity on the support provided and received for mitigation, adaptation, finance, technology development and transfer, and capacity-building. The Transparency Framework is guided by the Modalities, Procedures and Guidelines, which stipulate that all countries (except Least Developed Countries and Small Island Developed States) are required to submit reports and information every two years, and to track the progress of their NDCs.

FIGURE 1 **Evolution and support needed to implement REDD+ under the UNFCCC**


PHASES OF
REDD+
National Forest Monitoring System (NFMS)
Forest Reference (Emission) Levels (FR(E)L)
Safeguards and Safeguards Information System (SIS)
National Strategies / Action Plans (NS/AP)
Phase 1
Readiness
WARSAW FRAMEWORK
Development of national strategies, action plans and capacity building
Phase 2
Implementation
Implementation of national strategies, action plans, deployment of NFMS, capacity building and results-based demonstration activities
Phase 3
Results
Results-based actions are fully measured, reported and verified

**Source:** FAO, 2018d

Additional soft-law instruments include the Sustainable Development Goals (SDGs), (especially SDG 15, which calls for sustainably managed forests, combating desertification, halting and reversing land degradation and halting biodiversity loss), as well as Targets 5 and 7 of the Aichi Goals[4] and the New York Declaration on Forests.[5]

To support developing countries in moving forward with REDD+, the UN-REDD Programme,[6] among other initiatives, provides backing to nationally-led REDD+ processes, by promoting the informed and meaningful involvement of all stakeholders, including indigenous peoples and other forest-dependent communities.

The programme has been supporting national REDD+ efforts in 65 partner countries, spanning Africa, Asia-Pacific and Latin America.

[4] Target 5: By 2020, the rate of loss of all natural habitats, including forests, is at least halved and where feasible brought close to zero, and degradation and fragmentation is significantly reduced. Target 7: By 2020, areas under agriculture, aquaculture and forestry are managed sustainably, ensuring conservation of biodiversity.

[5] The New York Declaration on Forests is a political declaration that brings together governments, companies and civil society actors, including indigenous peoples' organizations, with the common aim of halving the loss of natural forests by 2020, and striving to end it by 2030. The Declaration has been endorsed by dozens of governments, over 30 of the world's biggest companies, and more than 50 influential civil society and indigenous organizations. https://unfccc.int/news/new-york-declaration-on-forests

[6] The UN-REDD Programme is the United Nations Collaborative Programme on Reducing Emissions from Deforestation and forest Degradation (REDD+) in developing countries. The programme was launched in 2008 and builds on the convening role and technical expertise of FAO, the United Nations Development Programme (UNDP) and the United Nations Environment Programme (UNEP). More information is available at: https://www.un-redd.org/. Special thanks are due for support from Denmark, Japan, Luxembourg, Norway, Spain, Switzerland and the European Union.

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Assistance to partner countries is delivered through:

- direct support for the design and implementation of the four REDD+ pillars and access to RBPs;
- complementary tailored support to national and subnational REDD+ actions; and
- technical capacity-building support through sharing of expertise, common approaches, analyses, methodologies, tools, data, best practices and facilitated South-South knowledge-sharing.

In that context, FAO support to countries is informed by decisions of the Conference of the Parties under the UNFCCC, as well as the guidelines provided by the Intergovernmental Panel on Climate Change.

In addition, FAO's contribution to countries in establishing an NFMS is based on the principles and guidelines provided in the Voluntary Guidelines on National Forest Monitoring (VGNFM).

In the case of an NFMS for REDD+, the following pillars are reinforced:

- Satellite Land Monitoring System (see Section 4.1.1 of VGNFM);
- National Forest Inventory (see Section 4.1.2 of VGNFM);
- Estimation of GHG emissions and removals (see Section 4.1.3 of VGNFM) (FAO, 2018b).

On this basis, during the past ten years, countries have progressively developed and operationalized their National Forest Monitoring System. Currently, some of these countries have set in place a functional NFMS, while others are less advanced, but all intend to ensure the long-term establishment of this system. The adoption of legal and institutional arrangements can make an important contribution, helping to guarantee sustainability, national ownership, financial support and interoperability.

## Key factors and legal challenges for NFMS institutionalisation

Although there is no stand-alone definition of 'institutional arrangements', these could be defined as a set of systems, policies, rules and processes that public and private institutions establish and use to manage and coordinate their relations and activities, either internally or with other institutions.

However, according to the Voluntary Guidelines on National Forest Monitoring (FAO, 2017), the process of 'institutionalizing' an NFMS means that it is formally, firmly and permanently embedded within a country's forest administration. Since establishing an NFMS is a long-term objective, setting up a legal basis, financial commitment and a permanent institutional framework is crucial, to ensure efficient implementation and operation.

This is an important point, since only a robustly institutionalized NFMS can help to ensure that: (i) national monitoring of forests is considered a fundamental government responsibility and there is ownership; (ii) data and information are consistently collected, managed, made permanently available and analyzed over time; (iii) national expertise is retained, which is a precondition for further development and improvement of the system; (iv) the government has a clear contact point when analysis and specific forest-related information are needed; (v) the expertise and experience developed is stored and creates the necessary 'institutional memory'; and (vi) a clear governance structure defining the roles of the different entities involved in an NFMS and related information systems is adopted. Ensuring a firmly institutionalized NFMS also helps to address a number of challenges related to accessibility, data-sharing and transparency.

However, based on countries' experiences, accessing and sharing data among institutions – either governmental or non-governmental – and within the same institution, can sometimes be a difficult task. Although a single government institution may be responsible for coordinating the various components of an NFMS, various governmental and non-governmental institutions are involved in operating the system, by contributing to the forest inventory, through forest mapping, planning and management, forest and land monitoring, soil carbon measurement, species identification, greenhouse gas estimations and reporting, etc. Such institutions include technical divisions of ministries, state commissions and agencies, private companies, non-governmental organizations (NGOs), universities, regional research centres and international cooperation partners.

For instance, the institution responsible for managing the national GHG Inventory (GHG-I) for all sectors, one of the key contributions to the NFMS, is often different (or a separate unit/division in the same institution) from the one overseeing the NFMS itself. Concerns about distortion or misuse of data and information, lack of trust, cost-related issues, ambiguous institutional mandates and unclear legal frameworks are often at the root of data accessibility challenges. While informal solutions sometimes produce results, they are generally unreliable and unsustainable, as they often depend on personal networks and may require some return of favour.

In addition, weak information on data-sharing systems, or lack of it, may result in duplication of efforts (i.e. two institutions collecting the same

data), which is not cost-efficient, and could lead to inconsistencies. Even if data are shared, issues of format and reliability often arise, together with conflicts over how data should be used, stored and organized.

These types of issue further strengthen the argument for setting in place a specific legal instrument that clearly defines the terms and conditions associated with the design and implementation of an NFMS.

To this end, the VGNFM provide Governance Guiding Principles, and explain how these can be implemented. It is important to bear in mind that a participatory and inclusive process is required at all stages, ensuring adequate consultations with all parties involved in the design and institutionalisation of the NFMS. This approach has particular significance given that forests are a component within a larger landscape level, where different land uses are contemplated. If the monitoring function includes forests and land-related data, a multisectoral coordination mechanism articulating forest, environmental and land-use change information will be required.

Once such clarity has been obtained, and the governance structures of an NFMS have been defined, the system could be supported by the establishment of a legal basis for national forest monitoring, for example, by adding a corresponding paragraph to a national forest law or by adopting a legal instrument, such as a decree. This may reflect the institutional arrangements needed to clarify and coordinate the roles and responsibilities of the various entities engaged in the NFMS, and promote the allocation of financial and human resources. In some countries, it may also require the creation of a particular service or unit to operate the NFMS (FAO, 2017).

## BOX 2 Principles of the Voluntary Guidelines on National Forest Monitoring

| | |
|---|---|
| **Governance principles** | **Principle 1:** Country ownership and responsibility |
| | **Principle 2:** Legal and policy basis |
| | **Principle 3:** Landscape view |
| | **Principle 4:** Institutionalisation of NFM |
| | **Principle 5:** Research infrastructure and capacity-building |
| **Scope principles** | **Principle 6:** Participatory discussion process |
| | **Principle 7:** Satisfaction of national information needs |
| **Design principles** | **Principle 8:** Integration of and consistency with existing information sources |
| | **Principle 9:** Flexible approach |
| | **Principle 10:** Multi-purpose approach |
| | **Principle 11:** Feasibility including cost-efficiency |
| **Data principles** | **Principle 12:** A well-defined data and information-sharing policy |
| **Overall principles** | **Principle 13:** Credibility through transparency and quality |
| | **Principle 14:** Collaboration at the international level |

| | |
|---|---|
| **Principle 2:** Legal and policy basis | In some contexts, it may be helpful to establish a legal basis for national forest monitoring, for example, by adding a corresponding paragraph to a national forest law, as well as to related policy. Defining a legal and policy approach may help to establish a formal link between the National Forest Monitoring System and a national forest programme, if these exist. This approach also supports country ownership (Principle 1) and may promote institutionalisation (Principle 4), as well as stimulate full implementation of national forest monitoring (e.g. permitting measurement in private forests). |
| **Principle 4:** Institutionalisation of NFM | A distinctive feature of forestry is its long-term character, which therefore requires a long-term structure, implemented through a permanent institution. A properly equipped national-level institute – whether or not it is located within the national administration – can promote: (i) Long-term availability of data, including adequate data management. This is an indispensable prerequisite for trend analysis from repeated observations, and for the framework of a defined data and information-sharing policy (Principle 12). (ii) Long-term availability of expertise, in terms of monitoring techniques, data management and analysis, and mainstreaming monitoring information into national and international policy processes. (iii) Long-term vision and adequate further development of approaches, enabling adjustments in scope and objectives, as well as continuity of related research. This supports flexible approaches (Principle 9).<br>The selection or development of an appropriate institution for a National Forest Monitoring System depends on national circumstances and available capacity. Efforts should be made to build on existing national institutions and capacities, while bearing in mind that long-term and secure adequate funding is required. |
| **Principle 13:** Credibility through transparency and quality | The design and implementation of National Forest Monitoring Systems are significant undertakings that are methodologically complex, involve many actors and are supported by a wide range of interested parties. The overall goal is to maintain the credibility of the results. This implies that any result must be produced in a manner that is scientifically defensible. That must include a comprehensive and critical analysis of all errors and implementation challenges. |

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Chapter 2

# Stepwise approach to adopting an NFMS legal instrument

## Targeted support for REDD+: A special focus on NFMS legal instruments

Since 2013, in the context of the UN-REDD Programme, FAO has provided assistance to countries to strengthen their legal capacity for REDD+. The approach has been to develop an in-depth understanding of legal and regulatory aspects of REDD+ and support the design of robust and coherent legal frameworks at national level.

Besides the key aspects of legal and institutional arrangements required for an effective NFMS, relevant cross-cutting issues for REDD+ include the need to:

- define rights (land, forest, carbon) and REDD+ terminology (trees, environmental services, forests, deforestation, degradation, carbon stocks, etc.);
- identify legal arrangements required to strengthen REDD+ institutional coordination (including benefit-sharing mechanisms);
- strengthen public participation processes and free prior and informed consent mechanisms; and
- establish decentralized mechanisms to support REDD+ at local level (UN-REDD, 2013).

The main counterparts are national governments of REDD+ countries that have expressed concerns about the need to update or review **existing legal frameworks** for the successful implementation of REDD+.

The approach adopted in providing legal support to REDD+ countries is based on the long experience of FAO's Development Law Service (LEGN) and the REDD+ team in helping nations to analyse and improve their laws governing forest, land and natural resources. The type of assistance provided varies, depending on the country's particular needs and circumstances.

Typically, a team of national and international legal and other technical experts conducts a systematic analysis of the legal framework related to forest, land and natural resources. It then develops detailed recommendations addressed to the government, highlighting weaknesses and constraints. Finally, the team contributes to the drafting of new laws and regulations, or other specialized legal instruments that may refer to a specific subject area, through participatory and inclusive processes.

A feature of most advisory projects is capacity-building through participatory legal training of national officials and consultants.

### BOX 3 Legal systems at country level

Each country has its own legal order, which forms an integral part of its legal system and is based on its own sources of law. The most important national sources of law are written/statutory laws. Sources of law include, in order of their position in the hierarchy: the Constitution; international law; laws enacted by Parliament; decrees, whether issued by the President of the Republic, the Council of Ministers or Ministries; ministerial regulations/resolutions; and legal rules issued by lower-ranking authorities, such as regional decrees of the legislative bodies or municipal ordinances. In addition to these, there is customary and case law. In developing countries, customary law is recognized as a primary source of law, and efforts are made to incorporate customary rights into statutory laws.

In order to support countries in setting in place a legal framework aimed at regulating their NFMS, the following stepwise approach has been adopted:

**Step 1:** The first step is to collect relevant laws and analyse the existing forest-related legal framework, focusing on aspects related to the National Forest Monitoring System. In particular, the legal expert assigned to this task identifies and collects the norms and provisions (of law and regulations) that establish the institutional framework and defines the roles and mandates of the institutions involved in NFMS activities at national and subnational levels. For example, certain institutions will be mandated to establish a satellite monitoring system or remote sensing, while others may develop a national forest inventory or GHG inventory. Such activities may require the participation of key actors at local level to establish community forestry monitoring.

**Step 2:** The second step will entail organizing interviews with key actors of the different institutions involved in the NFMS activities, so as to have a better understanding of the main challenges, the relevant tools and the major risks identified in NFMS implementation. At this point, the expert will identify the main platforms, fora and other existing dialogue mechanisms that can facilitate an exchange of data in the process of building an NFMS. On this basis, a legal analysis containing key recommendations will be conducted, and validated by key stakeholders through national workshops.

## BOX 4 Basic FAO principles in providing legal support to member countries

| | |
|---|---|
| 1 | **Each country requires advice tailored to its circumstances**<br>Legal solutions cannot be 'imported'; their effectiveness depends on their suitability in specific national contexts. The legal advice should be based on a careful analysis of the situation in the country being advised, including its existing legal frameworks, policy objectives and institutional capacities. |
| 2 | **Countries can learn a great deal from each other**<br>Even very different countries often face similar problems. Having access to a wide range of examples can make a valuable contribution to finding local solutions. |
| 3 | **National law must reflect international obligations**<br>One of FAO's main strengths is its ability to help countries to comply with international law through national legislation. Both existing international obligations, as well as expected future requirements, are taken into account in the provision of advice. |
| 4 | **Good law-making requires a multidisciplinary approach**<br>Since effective legal analysis and reform require a deep understanding of the context, the advisory work emphasizes close collaboration between legal experts and national and international specialists from other disciplines, such as agriculture, natural resources, forests and land, drawing on the technical expertise available within the organization across a broad range of disciplines. |
| 5 | **Law reform should be a participatory process**<br>The drafting of workable laws requires genuine involvement of all categories of stakeholder: governmental and non-governmental institutions, central and local authorities, community, indigenous people and private sector actors. LEGN helps in the design and support of such participatory processes through field research, stakeholder identification and consultation, public workshops and similar activities. |

**Source:** www.fao.org/3/ca6045en/CA6045EN.pdf

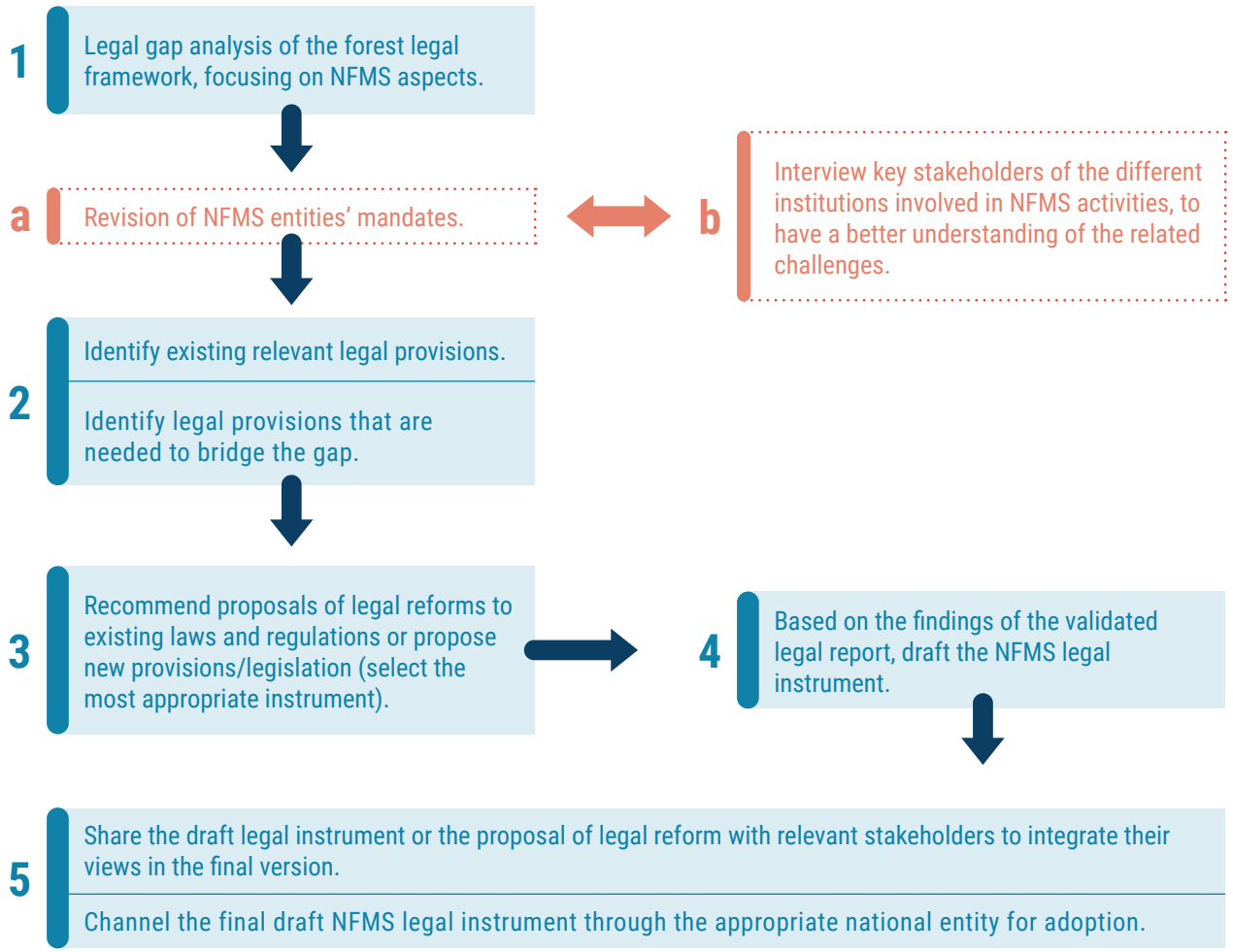
**Step 3:** In the light of these recommendations, the legal expert, in collaboration with the legal units of relevant forest-related institutions, will present options for developing relevant provisions that regulate and provide clarity on the roles and functions of the institutional entities involved in the NFMS, identifying the most appropriate legal instrument.

**Step 4:** The draft legal instrument (e.g. decree, resolution, ministerial agreement) will be shared with key stakeholders through national workshops, to receive their feedback.

The revised version will then be channeled through the appropriate institution for adoption. Alternatively, single provisions or a series of articles can be drafted and incorporated in the forest-related instrument under revision by the national authorities (forest law or regulation).

This process is summarized in Box 4.

FIGURE 2 **The step-wise approach to adopting an NFMS legal instrument**


1
Legal gap analysis of the forest legal framework, focusing on NFMS aspects.
a
Revision of NFMS entities' mandates.
b
Interview key stakeholders of the different institutions involved in NFMS activities, to have a better understanding of the related challenges.
2
Identify existing relevant legal provisions.
Identify legal provisions that are needed to bridge the gap.
3
Recommend proposals of legal reforms to existing laws and regulations or propose new provisions/legislation (select the most appropriate instrument).
4
Based on the findings of the validated legal report, draft the NFMS legal instrument.
5
Share the draft legal instrument or the proposal of legal reform with relevant stakeholders to integrate their views in the final version.
Channel the final draft NFMS legal instrument through the appropriate national entity for adoption.

**Source:** elaborated by the author

FIGURE 3

# The list of countries that have received FAO's legal support in the context of the UN-REDD Programme in 2013-2020

**Source:** elaborated by the author

LEGEND

- Countries that have received FAO's legal support in the context of the UN-REDD Programme in 2013-2020
- Countries that received legal support to establish NFMS

Chapter 3

# Case studies showcasing legal instruments adopted by REDD+ countries to establish an NFMS

This section showcases best practices through a selection of REDD+ country case studies, each demonstrating concrete results in establishing legal arrangements to strengthen the foundations for a National Forest Monitoring System.

The description of the case studies is based on national experiences, and therefore presents a variety of processes, timing and types of legal instrument and content.

The aim is not to compare one country with another, but to learn from their achievements in a complementary manner.

Latin American country (LAC) cases are structured in a similar manner. First, a description of the process, including the steps that led to the adoption of the legal instrument, is presented.

Then, a summary of the main elements contained in the legal instruments endorsed by the competent bodies follows.

Country cases from Asia-Pacific and Africa do not follow the same structure as those from LAC, considering that legal texts regulating NFMS have not yet been adopted. Those sections show relevant aspects linked to the development of an NFMS legal instrument or a data-sharing agreement in Asia-Pacific or Africa that might converge to the adoption of regulatory instruments. A summary of additional success stories concludes this chapter.

An analysis of the case studies, together with the Voluntary Guidelines on National Forest Monitoring, led to the design of a checklist, which identifies relevant elements contained in legal and institutional arrangements for National Forest Monitoring Systems. This is neither exhaustive, nor does it imply that countries need to make more effort to improve their norms, but it enables a rapid assessment to be made in order to ascertain whether the major indicative elements contained in the recommendations are reflected in the legal texts.

## Case studies from Latin America: Processes and contents related to an NFMS legal instrument

### COLOMBIA

#### A coordinated approach provides a sound basis for NFMS development

In Colombia, as a first step, the institutional needs related to an NFMS were assessed, taking into consideration national and international commitments endorsed by the country (Joint Declaration of Intent-Norway, NDC-transparency framework, REDD+). A mapping exercise was then conducted of the main national policies related to the NFMS and its tracking information system, together with the subprogrammes and tools used to implement them. This shows that the National Forest Information System (SNIF, after the Spanish acronym) is used to monitor the national restoration plan, forest policy, national policy for the integral management of biodiversity and forest development plan, while the Forest and Carbon Monitoring System (SMBYC) tracks

TABLE 1 **Standard template for checklist of the relevant elements in NFMS legal instruments**

| Topics | Inclusion in the legal instrument |
|---|---|
| **Clear definitions and concepts** | Are definitions aimed at clarifying NFMS-related concepts included in the legal instrument? |
| **Inclusion of principles (transparency, interoperability etc.)** | Are relevant principles such as transparency, interoperability, etc. included in the legal instrument?<br>Transparency = where and how the information will be share and stored.<br>Interoperability = arrangements within the institution and other institutions and related to standards/standardization are stated.<br>Data-sharing agreements? |
| **Designation of responsible entities and functions** | **National law must reflect international obligations** |
| **Involvement of national, subnational entities and other key actors** | **Are actors such as academia, NGOs or the private sector involved in the design or implementation of the NFMS?** |
| **Coordination mechanisms** | **Are coordination mechanisms within and between institutions in place and stated?** |
| **Governance structure in place** | **In order to operationalize the NFMS, are there plans to set up coordination or consultation bodies, including subgroups or working groups (example)?** |
| **Integrated reporting processes and methodological aspects** | **Are methodological systems to generate information and reporting processes included?** |
| **Financial sustainability** | **Are there provisions describing what measures will be adopted at country level to guarantee long-term sustainability of the NFMS? Do these include financial allocation to maintain the NFMS?** |
| **Alignment with national legislation** | **Is existing relevant legislation included? Are there references to existing legislation reflected in the text?** |

information related to the REDD+ strategy, low-carbon strategy, policy to combat deforestation, and climate change policy. The SNIF monitors areas to be restored, managed forest areas, and species indicators (diversity, legal and illegal trade), while the SMBYC tracks information related to the National Forest Reference Levels/National Forest Emission Reference Levels, carbon stocks stored in forests, degraded forest lands, sustainable forest management (SFM) areas, early warning linked to deforestation, and GHG inventories (Agriculture, Forestry and Other Land Use (AFOLU) and NDC modules).

In terms of legal options, two scenarios were proposed: 1) to include articles regulating the NFMS within the climate change law; and 2) to draft a specific regulation. The second option required major technical and legal capacities, but followed the technical proposal of the Ministry of Environment and Sustainable Development (MADS) and the Hydrology, Meteorology and Environmental Study Institute (IDEAM). It implied the creation of multidisciplinary teams (MADS-IDEAM), political will and endorsement of the proposal by the directors. Issues examined in deciding on the governance

options included the following: Are coordination entities necessary, and why? For what purpose? Do new coordination entities need to be created, or are the existing ones sufficient? Is there a need to adopt a norm to regulate ethnic territories? Which policies should be followed in terms of access to information and data protection? Which gaps need to be covered through this regulation? What are the essential elements that should be reflected in the proposal?

Having opted for the second choice, the next steps were to develop a road map, define the structure of the draft regulation, and plan consultation meetings led by IDEAM (including its legal team).

After one year of consultations, in 2017 the Government of Colombia adopted a decree to regulate and coordinate the country's Forest and Carbon Monitoring System (F&CMS), the National Forest Inventory (NFI) and the National Forest Information System (SNIF). These components are considered essential for the implementation of the National Programme on Monitoring of Forest and Forest Ecosystems (PMSB) formulated by the IDEAM. They are developed in collaboration with the Ministry of Environment and Sustainable Development (MESD-MADS), the Regional Environmental Authorities, research institutes of the National Environmental Information System, the National Authority on Environmental Licenses, the Inter-sectoral Commission to control deforestation and integral management of natural forests, and the National Investigation Institutes. The PMSB constitutes the basis for reporting domestic decision-making and international communications to the UNFCCC. One objective of the PMSB is the adoption of forest carbon monitoring strategies to measure carbon stocks and the emissions released into the atmosphere by deforestation (Decree n. 1655/2017).

The NFIS, NFI and F&CMS will be coordinated with the national registry on GHG inventory of emissions reductions and the national registry of programmes and projects linked to REDD+ (Art. 2.2.8.9.3.1).

The information provided by the NFIS, NFI and F&CMS is official and public, except for the restrictions imposed by the Constitution and the Law (Art. 2.2.8.9.3.4.). It will be published through different channels, including bulletins, reports, institutional portals and the National Environmental Information System of Colombia´s Geovisor.

According to the decree, IDEAM is in charge of establishing and operating the SNIF, NFI and F&CMS, including the following tasks:

- Define a strategy and tools for their implementation, including the mechanisms needed to update the environmental information generated by those systems, and coordinate them with the National Environmental Information System of Colombia.
- Establish mechanisms to facilitate the exchange of data with the environmental sector, productive sector, public national, regional or local entities, academia, NGOs and other stakeholders from civil society.
- Generate the information required by the MADS to support decision-making processes.
- Adopt the measures needed to support regional environmental and urban authorities responsible for reporting on those instruments (Art. 2.2.8.9.3.3).

The main objective of the SNIF is to develop the instruments and mechanisms required to manage forest information, integrating information from the NFI and F&CMS, ensuring its integration with the SIAC, and its interoperability with other information systems relevant to the SNIF. The SNIF also has responsibility for developing standards, protocols, processes and technological solutions to process and disseminate information generated by the forest sector, in order to support informed policy development and sectoral decision-making. Meanwhile, the NFI provides periodic information, adopting a multipurpose approach to assess the flora composition, biomass, soil carbon, wood debris and volumes, as well as the quality, conditions and dynamics of national forests. Among other tasks, it also generates information relevant to the SNIF and F&CMS. The regional environmental and urban authorities incorporate NFI technical and methodological guidelines, so as to harmonize forest management plans and thereby guarantee consistency of the information collected at

national, regional and local levels. The NFI will be implemented every 5 years, and 20 percent of the sampling units will be measured on an annual basis.

The F&CMS refers to the processes, methodologies, protocols and tools necessary for the generation of periodic information related to i) forest surface area and land-use changes; ii) carbon stocked in natural forests; iii) drivers of forest degradation and deforestation; and iv) GHG emissions and absorptions linked to deforestation and degradation.

Such processes and methodologies are aligned with the NFI and mechanisms to generate spatial information are harmonized with the SNIF (Art. 2.2.8.9.3.18).

The F&CMS is complete, dynamic, multiscale and multi-purpose (Art. 2.2.8.9.3.19). It will produce annual reports on the state of forests, and early warning reports will be released every three months (Art. 2.2.8.3.21).

TABLE 2 **Checklist of key elements contained in the legal instrument establishing the Colombia NFMS**

| Topics | Inclusion in the legal instrument |
|---|---|
| Clear definitions and concepts | X |
| Inclusion of principles (transparency, interoperability, etc.) | X |
| Designation of responsible entities | X |
| Definition of functions among the different entities involved | X |
| Involvement of national, subnational entities and other key actors | X |
| Coordination mechanisms | X |
| Governance structure in place | |
| Integrated reporting processes and methodological aspects | X |
| Financial sustainability | |
| Alignment with national legislation | X |

## KEY POINTS

- Legal options for an NFMS in Colombia were assessed at the very early stages of NFMS development.
- Strong political will and commitment from the Government and stakeholders was essential to a smooth process of institutionalizing the NFMS.
- The FAO legal checklist tool was used to guide the process of developing preferred legal instruments and support was provided through the UN-REDD Programme.
- A coordinated approach to the National Forest Information System, the National Forest Inventory and the Forest and Carbon Monitoring System has proved to be a successful solution in Colombia, recognized by decree 1655/2017, which regulates their functioning.

## HONDURAS

### Formal task-sharing generates consistent flow of information for forest monitoring

In Honduras, the main efforts initially focused on consolidating the Forest Monitoring and Management Information System (SIGMOF) and its team's capacities within the Wildlife, Protected Areas, Forest Development and Conservation Institute (ICF). The UN-REDD Programme played an important role in these efforts. With technical support from FAO,[7] the ICF then took the lead internally to develop a ministerial agreement regulating SIGMOF, planning a platform to facilitate the enactment of bilateral agreements with specific entities, organizations and institutions, which would strengthen it.

In 2019, Agreement 02/2019, aimed at formalizing SIGMOF, was signed by the Minister Director of the ICF. Article 1 states that the ICF has responsibility for the functioning and coordination of SIGMOF.

The objective of SIGMOF is to implement a platform aimed at generating statistics and spatial information in an integrated and efficient manner through the ICF. The information generated through the platform refers to the state of forests, land-use changes and ecosystems, so as to adopt informed decisions aimed at guaranteeing their sustainability, and responding to international commitments ratified by Honduras (Article 3). SIGMOF also has five specific objectives, including the production of official, clear and detailed information related to forest cover, forest-cover loss and gains generated by terrestrial monitoring. It establishes norms, protocols, measures and other tools aimed at standardizing processes and information flows to inform SIGMOF.

In addition, it generates reports related to the state of forests, forest emissions reductions and absorption, together with the Land Use, Land-Use Change and Forestry (LULUCF) GHG inventory, in coordination with technical departments.

SIGMOF will coordinate three different information processes related to forests:

- State and dynamics of forest cover
- Emissions factors provided by the NFI
- State of forests, considering information related to forest fires, pests and forest diseases

SIGMOF should respect the following principles: transparency, consistency, precision, comparability, interoperability, participation and inclusion. It should also guarantee access to information, promote inter-institutional coordination, respect safeguards, and obtain data, generating information required by the country (Article 5).

The governance structure of SIGMOF includes a Consultation Council, technical units and thematic working groups.

The Consultation Council identifies financial opportunities to strengthen SIGMOF, creates alliances to improve the technical capacities of SIGMOF's team, and defines mechanisms to facilitate information provided by the forest sector's national reports and its complementarity with other sectors. The Council will adopt an internal regulation and meet every three months during ordinary sessions, or meet for extraordinary sessions whenever called on by the Coordination Unit, which is made up of Climate Change and Forestry departmental representatives, and the Forestry Information & Heritage Center.

The Technical Unit under SIGMOF has responsibility for several functions, including: prioritizing and planning actions relevant to the ICF, as well as establishing protocols, products and inputs to harmonize methodological elements, coordinating the technological platform of SIGMOF, strengthening capacities of ICF technical staff as needed, promoting the centralization of a database of forestry regions and departments within the spatial data platform (IDE Forestal), analysing data related to forest cover, and proposing improvements and the creation of new thematic working groups to SIGMOF.

[7] The forest legal assessment developed in collaboration with FAO: "Obstáculos y opciones legales para la implementación de iniciativas REDD+ en Honduras". Vallejo, M. 2017. FAO collaborated in the review process, and participated in bilateral meetings within the ICF team.

Thematic working groups produce technical forestry information to inform decision-making related to methodological aspects, protocols or use of tools, as well as to operate processes established under SIGMOF. These working groups also focus on technological updates and improvements to develop collaborative mechanisms. Finally, ad hoc groups could also be created to improve thematic areas of SIGMOF (Article 6).

SIGMOF integrates elements and data related to the forest sector (LULUCF) produced by other entities, in order to improve transparency, and build national processes linked to other sectors, such as the GHG inventory and the REDD+ national strategy (Article 7).

The information provided by SIGMOF will be updated according to existing legal commitments, and other obligations assumed at international level (Article 8).

Public and private entities, including international organizations, can make technical and financial contributions to implementing SIGMOF, through the ICF (Article 9). The information and products generated by SIGMOF are public and freely accessible, except for limitations established by the Constitution and the law (e.g. intellectual property rights, Article 10).

**TABLE 3** **Checklist of key elements contained in the legal instrument establishing the Honduras NFMS**

| Topics | Inclusion in the legal instrument |
|---|---|
| Clear definitions and concepts | X |
| Inclusion of principles (transparency, interoperability, etc.) | X |
| Designation of responsible entities | X |
| Definition of functions among the different entities involved | X |
| Involvement of national, subnational entities and other key actors | X |
| Coordination mechanisms | X |
| Governance structure in place | X |
| Integrated reporting processes and methodological aspects | X |
| Financial sustainability | X |
| Alignment with national legislation | X |

## KEY POINTS

- In Honduras, the first step was to consolidate the Forest Monitoring and Management Information System (SIGMOF) and its team's capacities within the Wildlife, Protected Areas, Forest Development and Conservation Institute (ICF).
- Subsequently, the ICF took the lead internally to develop a ministerial agreement regulating SIGMOF.
- The objective of SIGMOF is to implement a platform aimed at generating statistics and spatial information in an integrated and efficient manner through the ICF.
- The information provided by SIGMOF is then updated according to existing legal commitments, and other obligations assumed at international level.
- The Consultation Council identifies financial opportunities to strengthen SIGMOF, which is essential to guarantee its sustainability in the long-term.
- Fostering internal capacities within the ICF and having clarity on the governance structure of SIGMOF were paramount to developing a regulatory framework founded on a solid basis.

## ECUADOR

### Institutional guidelines for integrated forest management and international compliance

In November 2016, the Ministry of Environment (MoE) of Ecuador adopted a ministerial agreement to formalize the REDD+ Action Plan, integrating guidelines for implementation of the NFMS. These stated that within 90 days, technical standards aimed at regulating the NFMS should be adopted. To comply with such a requirement, and in order to strengthen national capacities to address NFMS legal-institutional issues, the MoE requested that FAO provide recommendations on NFMS institutional arrangements and improving coordination of the system. A legal expert was based at the MoE in 2017. In addition to developing a comprehensive legal report, the following factors were analyzed: a) data accessibility procedures and uses by different entities involved in monitoring functions, with a focus on the preparation of GHG and MRV inventories for REDD +, nationally appropriate mitigation actions (NAMAs) and NDCs; b) main platforms, fora and other mechanisms that facilitate data exchange for the NFMS; and c) gap analysis and needs related to data accessibility procedures. Several internal meetings took place within the MoE to share updates, and to present the draft legal report, set of recommendations and draft technical norm. As a result, legal provision regulating the NFMS was included in the Organic Environmental Code under revision, and a ministerial agreement was adopted in 2019.

On 4 June 2019, the MoE adopted Ministerial Agreement n. 052/2019 to enact institutional guidelines for the functioning of its NFMS. This served to ensure that the NFMS was more institutionalized, that integrated forest management was improved, and that there was compliance with relevant national and international commitments.

The NFMS is conceived as an integral and multilevel system aimed at managing forest and natural ecosystem information at national level. Harmonized methods, processes and stakeholders combine to ensure that spatial, biophysical and socio-economic forest-related information is produced, reported and analysed (including associated biodiversity and natural ecosystems, Article 3).

Its objective is to produce periodic MRV information, allowing users to assess and implement policies, measures and actions related to forest conversions, SFM, restoration, forest governance, sustainable management of natural resources, soil use and territorial management, thereby facilitating forest-related decision-making, and the adoption of national and international GHG reports (Article 4).

The NFMS is designed to be holistic, multi-purpose and flexible, so as to integrate emerging issues and enable the planning of periodic revisions related to different aspects of natural heritage that come under the responsibility of the MoE (Article 5). Under the Natural Heritage Sub-Secretary, the National Forest Direction is in charge of planning, monitoring and executing activities related to the NFMS (Article 6).

The NFMS is based on three components: a) Biophysical; b) Spatial; and c) Information analysis and reporting (Article 8). Article 9 lists 16 results that focus on NFMS components, such as analysing and systematizing forest-related information (including biodiversity associated with natural ecosystems); managing forest community monitoring data; analysing the state of land cover, its changes and carbon distribution; monitoring terrestrial ecosystem conditions; developing standardized protocols and methodologies to implement NFMS processes; and strengthening linkages with other relevant information systems and the national platform to increase transparency (Article 8).

Coordination mechanisms with other units within the MoE are needed to enforce the NFMS. In particular, there is a need to disseminate NFMS-related information channeled by the environmental information system, creating a network to develop policies aimed at exchanging biological data, in order to standardize national collections, and exchange relevant information with the environmental early warning system (Article 9).

The NFMS will establish and strengthen cooperation mechanisms with other state institutions, including academia, research institutes,

cooperation organizations and private enterprises. Those mechanisms will facilitate the generation of information required for NFMS processes and related decision-making, incentivize high-level scientific research of forest MRV, and contribute to establishing the joint exchange of information mechanisms. The process will be supported by financial, technical and scientific assistance, and establish mechanisms for the validation of products generated by the system (Article 10).

A glossary containing key definitions is included (Article 11). Provisions state that that the Natural Heritage Sub-Secretary should generate the management model for the NFMS, and that the sub-secretaries, coordination units and directions of the MoE will facilitate its institutionalisation, as well as its integration within the ministry's organic management statute.

**TABLE 4** **Checklist of key elements contained in the legal instrument establishing the Ecuador NFMS**

| Topics | Inclusion in the legal instrument |
|---|---|
| Clear definitions and concepts | X |
| Inclusion of principles (transparency, interoperability, etc.) | X |
| Designation of responsible entities | X |
| Definition of functions among the different entities involved | |
| Involvement of national, subnational entities and other key actors | X |
| Coordination mechanisms | X |
| Governance structure in place | |
| Integrated reporting processes and methodological aspects | X |
| Financial sustainability | |
| Alignment with national legislation | X |

## KEY POINTS

- In June 2019, Ecuador's Ministry of Environment adopted a Ministerial Agreement to draw up institutional guidelines for the functioning of the NFMS. This served to ensure that the NFMS was more institutionalized, that integrated forest management was improved, and that there was compliance with relevant national and international commitments.
- The NFMS is designed to be holistic, multi-purpose and flexible, so as to integrate emerging issues and enable the planning of periodic revisions related to different aspects of natural heritage that come under the responsibility of the MoE.
- A special focus has been placed on developing coordination mechanisms with other units, as well as cooperation mechanisms with other state institutions, including academia, research institutes, cooperation organizations and private enterprises.
- The long-term financial sustainability of the NFMS still remains to be secured.

## Specific aspects linked to the development of an NFMS legal instrument: country cases from Asia-Pacific and Africa

### SRI LANKA

#### Developing a data-sharing agreement for the NFMS

In order to facilitate the establishment of an NFMS in Sri Lanka, several institutions entered into a data-sharing agreement under the auspices of the Forest Department.

Several national consultations and meetings were organized among governmental and non-governmental institutions, so as to facilitate identification of data and their use(s) under an NFMS. Under this agreement, six national entities pledged to share data and products to facilitate their integration and use in developing the NFMS.

By considering the existing data and their value to the NFMS, the Forest Department ensured the involvement of national entities in the process of establishing an NFMS. This approach also helped to minimize inconsistencies between the various activities related to the monitoring of natural resources, and ensured the transparency and robustness of the NFMS.

In addition, strengthened collaboration with other national entities is expected to increase cost-effectiveness in the long term.

Although such a data-sharing agreement may be considered an interim measure before reinforcing institutional arrangements among various national entities, this accord has been instrumental in advancing the establishment of the NFMS.

The NFMS was officially launched on 9 May 2017, with a National Task Force at the core.

This joint collaboration includes the Forest Department, Department of Wildlife Conservation, Survey Department, Climate Change Secretariat, Central Environment Authority and the Natural Resource Management Centre, which offers technical advice and expertise on developing the NFMS portal.

### UGANDA

#### Developing a data-sharing agreement for the NFMS

In Uganda, a comprehensive review was recently conducted of the roles and responsibilities of the NFMS and its alignment with national forest policy, in order to promote its institutionalisation.

In addition, bilateral consultation meetings and workshops were held to define existing gaps.

The gap analysis, currently under revision by national counterparts, includes timelines and budgets, and identifies areas for improvement, so as to better integrate the NFMS into the Government's structure. Areas that require more attention include strengthening coordination among key entities and guaranteeing financial sustainability (principally for staffing). An average 50 percent of positions are currently vacant, with no plans for filling them.

In general terms, the institutional mandates and the Government's responsibilities in relation to the forestry sector are clearly defined. Within the Ministry of Water and Environment, the NFMS is currently led and coordinated by the REDD+ National Focal Point of the Forestry Sector Support Department (FSSD). The REDD+ Secretariat also comes under the FSSD and is currently financed by projects. Meanwhile, NFMS technical operations are almost entirely delegated to the National Forest Authority, a semi-autonomous institution established in 2003 under the National Forestry and Tree Planting Act. The Climate Change Department is the focal point for the UNFCCC, greenhouse gas inventory and Forest Reference Levels, while the District Forest Services are in charge of ground monitoring functions, though

TABLE 5 **Checklist of key elements aiming to be reflected in the legal instrument establishing the Uganda NFMS**

| Topics | Inclusion in the legal instrument |
|---|---|
| Clear definitions and concepts | X |
| Inclusion of principles (transparency, interoperability, etc.) | Discussion ongoing* |
| Designation of responsible entities | X |
| Definition of functions among the different entities involved | X |
| Involvement of national, subnational entities and other key actors | Discussion ongoing |
| Coordination mechanisms | X |
| Governance structure in place | X |
| Integrated reporting processes and methodological aspects | X |
| Financial sustainability | Discussion ongoing |
| Alignment with national legislation | X |

*At the time of publication of this technical brief.

these are only partially implemented due to financial restrictions. With regards to data management, clear access rights have yet to be defined. Discussions are ongoing to assess the need for adopting a data-sharing protocol, since these functions are currently handled on an informal basis.

## DEMOCRATIC REPUBLIC OF THE CONGO

### Regular consultations to shape an effective NFMS strategy

In Democratic Republic of the Congo, the NFMS is managed by the Direction of Forest Management and Inventories (DIAF) and the Direction of Sustainable Development (DDD) of the Ministry of Environment and Sustainable Development (MEDD). The Geomatics Division of the DIAF collects activity data and creates land-use change maps, while its NFI division leads the work on emissions factors and operates the Land Monitoring Satellite System. The greenhouse gas inventory is hosted by the DDD, which also acts as focal point to the UNFCCC, reporting the Forests Reference Emissions Levels, biannual communications and Biennial Update Reports.

A steering committee led by MEDD, with technical support from FAO, meets twice a year to ensure the regular monitoring of activities, and to define guidelines for the achievement of NFMS objectives.

In addition to the biannual steering committee meetings, a technical coordination platform officially meets on a monthly basis, to discuss technical matters and decide on methodologies, final products and statistics to be endorsed by the NFMS.

The national forest monitoring information is made public on a web portal available at http://rdc-snsf.org/.

## KEY POINTS

- In **Sri-Lanka**, the NFMS was officially launched on May 2017. In order to facilitate its establishment, several institutions entered into a data-sharing agreement under the auspices of the Forest Department. Although this agreement may be considered an interim measure before reinforcing institutional arrangements among various national entities, it has been instrumental in advancing the establishment of the NFMS.
- In **Uganda**, a comprehensive review was recently conducted of the roles and responsibilities of the NFMS and its alignment with national forest policy, in order to promote its institutionalisation. Institutional mandates and the Government's responsibilities in relation to the forestry sector are clearly defined. Further attention is required, including strengthening coordination among key entities, guaranteeing financial sustainability (principally for staffing) and clarifying data access rights.
- In **Democratic Republic of the Congo**, the NFMS is managed by the Direction of Forest Management and Inventories (DIAF) and the Direction of Sustainable Development (DDD) of the Ministry of Environment and Sustainable Development (MEDD). Efforts have been to improve coordination mechanisms, not yet regulated by law.

A regulatory framework codifying those aspects might contribute to institutionalize the roles and mandates of the different entities involved in the NFMS, and operationalize the coordination mechanisms that have been established.

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## Summary of additional success stories: Costa Rica, Paraguay and Peru

### COSTA RICA

Costa Rica has recently developed a national system for monitoring land cover, land use and ecosystems (SIMOCUTE). This is a decentralized system, where different institutions and entities such as the National Environmental Information System and the National Territorial Information System share data and information, according to their mandates and roles based on established requirements and standards. Besides sharing information, five working groups have developed innovative methodologies to collect, analyze and process data. A harmonized methodology aimed at consolidating different proposals is currently being developed, helping to reduce costs, streamline gaps linked to definitions and approaches, and improve coherence and transparency of data generated by different sectors, thereby properly informing official country reports. Technical and institutional elements have been identified, and a governance structure established to operationalize the SIMOCUTE.

In 2017, Costa Rica submitted a draft decree for consultation aimed at regulating its functioning. It is planned that the Minister of Environment, Minister of Justice, Minister of Agriculture and Director of the National Geo-environmental Information Center will sign the final decree after different rounds of consultations.

## PARAGUAY

In 2018, Paraguay adopted Law 6256/2018 regulating the prohibition of transforming and converting forestlands in the eastern region. Article 3 specifically relates to the functioning of the NFMS, stating that the Ministry of Environment and Sustainable Development and the Forest National Institute would update and regulate the organic structure of the NFMS within 180 days of the entry into force of this law. It includes definitions, as well as technical and financial provisions necessary for its functioning.

An inventory of native forests will be published on a monthly basis for the eastern region. Following on from this, in 2020 the President of the Republic adopted decree n. 3246/2020 aimed at regulating the NFMS. The objective is for the NFMS to periodically provide official national MRV information related to forest cover, compatible with other geographic information systems, as well as information related to forest carbon stocks, and quantitative and quality forest species (Article 2).

The decree contains guiding principles (Article 3), definitions (Article 4), and provisions aimed at guaranteeing financial sustainability (Articles 10–12); it also clearly states the functions and responsibilities of the National Forest Institute (INFONA) and the Ministry of Environment and Sustainable Development (MADES).

An Inter-institutional cooperation agreement was due to be signed between INFONA and MADES within 90 days of the entry into force of this decree, focusing on NFMS technical and operational aspects (Article 16), and elements related to the NFMS governance structure in MADES and INFONA was due to be adopted within 90 days by Resolution (Article 15).

## PERU

In Peru, Forests, Wildlife Law n. 29763 and its regulations adopted in 2015 address implementation of the National Forest and Wildlife Information System (SNIFFS), led by the General Direction of Information, Forests and Wildlife Management of the National Forest and Wildlife Service (SERFOR), with the aim of improving informed decision-making based on integrated forest-related information.

For this purpose, SERFOR has developed a conceptual framework, a descriptive guide of its components, and a governance plan describing how SNIFFS will operate, and defining its objective, governance structure (including the role of different entities and working groups) and implementation plan. The functioning of SNIFFS has been validated by the adoption of resolution n. 44-2020 by SERFOR.

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## KEY POINTS

- **Costa Rica** has recently developed a national system for monitoring land cover, land use and ecosystems (SIMOCUTE), where different institutions and entities share data and information, based on established requirements and standards. In 2017, Costa Rica submitted a draft decree for consultation aimed at regulating its functioning. It is planned that the Minister of Environment, Minister of Justice, Minister of Agriculture and Director of the National Geo-environmental Information Center will sign the decree after final rounds of consultations.
- In 2018, **Paraguay** adopted law 6256/2018, regulating the functioning of its NFMS. In 2020, the President of the Republic adopted decree n. 3246/2020 to implement that provision. The decree contains guiding principles, definitions and provisions aimed at guaranteeing financial sustainability and clarifying institutional responsibilities.
- In **Peru**, Forests, Wildlife Law n. 29763 and its regulations (2015) address implementation of the National Forest and Wildlife Information System (SNIFFS), led by the General Direction of Information, Forests and Wildlife Management of the National Forest and Wildlife Service (SERFOR). SERFOR has developed a conceptual framework, a descriptive guide of its components, and a governance plan describing how SNIFFS will operate.

**TABLE 6** Checklist of key elements contained in the legal instrument establishing the NFMS of Costa Rica, Paraguay and Peru

| Topics to be included in the legal instrument | Costa Rica | Paraguay | Peru |
|---|---|---|---|
| Clear definitions and concepts | X | X | X |
| Inclusion of principles (transparency, interoperability, etc.) | X | X | X |
| Designation of responsible entities | X | X | X |
| Definition of functions among the different entities involved | X | X | X |
| Involvement of national, subnational entities and other key actors | X | X | X |
| Coordination mechanisms | X | X | X |
| Governance structure in place | X | X | X |
| Integrated reporting processes and methodological aspects | X | X | X |
| Financial sustainability | X | X | X |
| Alignment with national legislation | X | X | X |

Chapter 4

# Conclusions and recommendations

Since the majority of REDD+ countries have now ratified the Paris Climate Agreement and made ambitious commitments to reduce carbon emissions from the forest sector in their Nationally Determined Contributions, National Forest Monitoring Systems are increasingly being used to manage forest- and land-related data. It is therefore imperative to develop information systems that are transparent, multi-purpose and accessible to the public.

Due to the evolving context, clear and sustainable forest-related institutional mandates established by law and supported by sound governance structures, solid human capacities and adequate financial commitments will be critical. Such an approach is essential to guarantee the sustainability and transparency of each NFMS, and ensure coordination with other sectors.

Strengthening human and technical capacities, while creating the conditions to design, implement and evaluate options for improved climate action in the forest sector, will require setting in place institutional arrangements for the collection, analysis and reporting of related data.

To that end, legal expertise can play a valuable role in guiding the design of an NFMS from its inception phase. This will ensure that institutional and legal elements are embedded in the NFMS design, which will in turn help to develop legal instruments for establishing and implement options. The National Forest Monitoring Assessment tool[8] based on FAO's VGNFM, aims to assist countries in carrying out a comprehensive capacity assessment of forest monitoring across three complementary themes: (i) institutional arrangements, (ii) measurement and estimation, and (iii) reporting and verification. In addition to an in-depth legal gap analysis, it might be used to identify institutional gaps and needs to operationalize an NFMS.

An NFMS involves many actors supporting different components of the system, such as data collection, analysis and management, monitoring and measuring of GHG emissions, and reporting and verifying of emissions reductions. For this reason, the responsibilities for the various elements of the NFMS scattered between and within a range of institutions, divisions or departments should be adequately reflected in the legal instrument, taking into account gender considerations to valorize the role of women in forest-related institutions. In addition, there must be agreement on the methodologies to be used for analysing data and ensuring coherency among sectoral entities.

Some Latin American countries have made concerted efforts in this direction. Others in Africa and Asia are showing a growing interest in making such arrangements, with support from FAO and partner organizations. It is therefore expected that further countries may benefit from these lessons learnt, and follow similar paths.

In terms of legal options, the majority of country case studies presented here have adopted secondary legislation to regulate their NFMS. Primary legislation is the general term used to describe the main laws passed by the legislative body (Parliament), while secondary legal instruments, such as decrees or resolutions, are issued by the executive body, involving one or more ministries, depending on the sectorial implications.

Examples include decrees (Colombia), agreements (Ecuador, Honduras), and implementation of articles contained in forest laws or codes (Ecuador, Paraguay,

[8] NFMS assessment tool is available in lesson 2 of the eLearning course on "*Forest and transparency under the Paris Agreement*": https://elearning.fao.org/course/view.php?id=587

Peru). Most of these countries comply with the requirements itemized in the checklist, and have made concrete efforts to coordinate the various components of the NFMS by defining a governance structure and clarifying multilevel information flows within the relevant entities, and at different scales.

The period required for adopting legal instruments may vary, depending on the level of consultations undertaken during the drafting process, and its priority for the government. Secondary legislation is expected to be more expeditious than laws passed by the legislative body, since it comes under the authority of the competent ministry or ministries, representing the executive body. In Colombia, the adoption of the decree took one year, while in Paraguay it took more than three. In addition, if the forest or environmental law, enacted by Parliament, is under revision, it may be considered an opportunity to insert NFMS-related provisions (Ecuador).

The experience gathered through REDD+ in the case studies presented here highlight important lessons learned, which can benefit other countries. First, it will be fundamental to have clarity on the way that a country's NFMS operates, and establish interoperability mechanisms to ensure data[9] accessibility among different institutions and coordination of consultative bodies. A clearly system that defines the flow of information from national to subnational level, and vice-versa is essential. If the information system involves other sectors, such as land and agriculture, the different ministries and competent entities should be involved from the beginning in the design of the monitoring system. Their corresponding roles and functions within the system should then be defined within the same legal instrument. Finally, having clarity on the Government´s priorities, is also a critical ingredient to ensure that the draft legal instrument responds to the country concrete needs.

The countries showcased in this paper show a strong commitment to institutionalizing their National Forest Monitoring Systems, and this is reflected in political decisions taken to adopt legal instruments for their sustainability. Each of the case studies describes significant progress made in establishing coordination mechanisms among relevant institutions to facilitate data-sharing through unique information systems, while drawing up guiding principles and harmonized methodologies to operationalize the NFMS. However, it remains clear that major efforts will still be required to implement those recently adopted NFMS regulations, even if a growing number of REDD+ countries are demonstrating increased capacities and concrete willingness to move in that direction.

[9] E.g. that privacy rules are respected, and periodically collected data are coherently aggregated.

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# Annex

## BOX A Overview of UNFCCC key decisions relevant to REDD+ since 2007

| | | |
|---|---|---|
| **COP 13** | 2007 | **2/CP.13** Reducing emissions from deforestation in developing countries: approaches to stimulate action. |
| **COP 15** | 2009 | **4/CP.15** Methodological guidance for activities related to reducing emissions from deforestation and forest degradation and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries. |
| **COP 16** | 2010 | **1/CP.16** The Cancun Agreements: outcome of the work of the Ad Hoc Working Group on Long-term Cooperative Action under the Convention. |
| **COP 17** | 2011 | **2/CP.17** Outcome of the work of the Ad Hoc Working Group on Long-term Cooperative Action under the Convention.<br>**12/CP.17** Guidance on systems for providing information on how safeguards are addressed and respected, and modalities related to Forest Reference Emission Levels and Forest Reference Levels, as referred to in Decision 1/CP.16. |
| **COP 18** | 2012 | **1/CP.18** Agreed outcome pursuant to the Bali Action Plan. |
| **COP 19** | 2013 | **9/CP.19** Work programme on results-based finance to advance full implementation of the activities referred to in Decision 1/CP.16, paragraph 70.<br>**10/CP.19** Coordination of support for the implementation of activities in relation to mitigation actions in the forest sector by developing countries, including institutional arrangements.<br>**11/CP.19** Modalities for National Forest Monitoring Systems.<br>**12/CP.19** The timing and frequency of presentations of the summary of information on how all the safeguards referred to in Decision 1/CP.16, Appendix I, are being addressed and respected.<br>**13/CP.19** Guidelines and procedures for the technical assessment of submissions from Parties on proposed Forest Reference Emission Levels and/or Forest Reference Levels.<br>**14/CP.19** Modalities for measuring, reporting and verifying.<br>**15/CP.19** Addressing the drivers of deforestation and forest degradation. |
| **COP 21** | 2015 | **16/CP.21** Alternative policy approaches, such as joint mitigation and adaptation approaches for the integral and sustainable management of forests.<br>**17/CP.21** Further guidance on ensuring that the transparency, consistency and safeguards referred to in Decision 1/CP.16, Appendix I, are being addressed and respected.<br>**18/CP.21** Methodological issues related to resulting non-carbon benefits. |
| **COP 24** | 2018 | **18/CMA.1** Modalities, procedures and guidelines for the Enhanced Transparency Framework for action and support. |

**INSTITUTIONALISATION OF FOREST DATA:**
ESTABLISHING LEGAL FRAMEWORKS
FOR SUSTAINABLE FOREST MONITORING
IN REDD+ COUNTRIES

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